EMPLOYMENT AND ECONOMIC DEVELOPMENT
OFFICE OF BROADBAND DEVELOPMENT

BEAD Network Upload Network Design (Applicants may upload additional info if more space is needed)

Section 1: Required for all proposed technology network designs

1. Provide a high-level description of the network design and planned performance. Describe how the design will result in a high-quality network that will achieve the planned performance, be scalable for future growth and describes the resiliency of the proposed network. Where applicable, please indicate why the network design details were chosen and where the applicant has included specific equipment or network design components at an increased cost to improve quality and resiliency. [text 3000 character limit]

Section 2: Required for fiber projects and for mixed technology projects with fiber (leave blank if it does not apply to the proposed network design)

1. What is the minimum percentage of buried fiber that will be deployed for the project? [% numerical entry]

2. What is the maximum percentage of aerial fiber that will be deployed for the project? [% numerical entry]

3. What are the total estimated fiber miles for the proposed project application? [numerical entry]

4. What percentage of the proposed fiber project route will deploy underground conduit? [% numerical entry]

5. What is the minimum number of fiber optic strands that will be deployed for this project? [numerical entry]

Buried Fiber Specifications (if applicable)

6. If conduit is not being deployed for the entire network deployment, describe what portions of the network will have conduit deployed. [200 characters]

7. Describe the placement of the conduit and/or direct-bury fiber being deployed (e.g. right-of-way, ditches, etc.). [200 characters]

8. Describe the method for deploying underground fiber (e.g. directional boring). [200 characters]

9. Will the fiber be buried at depths of least 18 inches/drop installations and 36 inches/ROW? [yes/no]
   ◯ Yes ◯ No

10. Describe the process for placement of network access points where conduit is deployed and the average distance intervals between network access points. [200 characters]

11. What is the longest deployed distance fiber loop in the proposed network. [numerical entry]

Aerial fiber specifications (if applicable)

12. Describe the portions of the network with planned aerial fiber deployment. [200 characters]

13. Describe the geographic characteristics or other scenarios that make aerial fiber a more feasible deployment option for the described portions of the network. [200 characters]

14. How many of the locations proposed will have last-mile aerial fiber deployed? [numerical entry]

15. For any fiber that will be attached to existing poles, please indicate the pole owner(s) and describe any existing attachment agreements between the applicant and owner? [200 characters]

Network technical specifications

16. What type of passive optical networking (PON) technologies will the network use (e.g. GPON, XG PON, XGS PON, etc.)? [100 characters]

17. If you deploy an Active Optical network, what is the maximum throughput capable per end user? [numerical entry]

Section 3: Required for fixed wireless projects and mixed technology projects that include fixed wireless (leave blank if it does not apply to the proposed network design)

For proposed Unlicensed Fixed Wireless project seeking priority broadband status applicants must present sufficient evidence to address the concerns laid out in Appendix A of the BEAD Restructuring Policy Notice. This will include providing complete, informative answers in Section 1 and Section 3. .

•The technology vendor are you intending to use in the proposed area.
•The frequency bands you are currently using for last mile delivery and
•The size bandwidth in MHZ are your channel allocations.
•The current Mbps of simultaneous capacity to each of your current customers.
•Your reserved base station capacity reserved to account for periods of higher interference.
•Your current capacity/loading of base stations radios with respect to the number of, and provisioned bandwidth of subscribers.
•Your your current minimum signal strength necessary to meet subscribers speed and latency subscription tier requirements.
•How you mitigate interference in your current network deployment. Desrcribing resolutions for both internal and external interference.
•Your current backhaul technology used?
•Your current backhaul capacity and excess backhaul capacity?

Applicants must also provide the following data which can be uploaded in the "Other Uploads" section of the application.

•Fixed broadband availability polygons indicating the area served by each vertical asset. Polygons must match the specifications used in FCC Broadband Data Collection for fixed broadband availability polygons with the addition of a field titled “site_id” – relating to the unique site ID in the “Fixed Wireless Base Station Location and Height” file submitted as part of the Fixed Wireless Broadband Supporting Data submission that provides the service indicated by the polygon.
•Fixed wireless broadband supporting data matching the specifications used in the FCC Broadband Data Collection for fixed broadband supporting data for providers submitting availability polygons.
•Link studies per BSL location associated with the location ID and the base station location and ID. (Latitude/Longitude)

1. How many radios and/or base stations will be deployed? [numerical entry]

2. What licensed spectrum allocations will be used for the proposed locations to be served by fixed wireless? (select all that apply)
   - ☐ 2.5 GHz
   - ☐ 3.45 GHz
   - ☐ CBRS (3.5 GHz)
   - ☐ C-Band (3.7 GHz)
   - ☐ Upper-band spectrum (24 GHz, 28 GHz, 37 GHz, 39 GHz and 47 GHz)
   - ☐ other (specify): [50 characters]

3. What percentage of wireless radios/base stations will be directly backhauled by fiber? [% numerical entry]

4. What percentage of wireless radios/base stations will be backhauled by a microwave or a millimeter wave connection from another base station/radio? [% numerical entry]

5. On average, how many locations will be served by a single radio/ base station? [numerical entry]

Network deployment and technical specifications

6. What is the overall capacity of the proposed network (e.g. 15Gb backhaul capacity) [50 characters]

7. Provide the specifications and technical capabilities of the radio equipment planned for deployment. [300 characters]

8. What is the planned number of fixed wireless service sectors in the deployment? [numerical entry]

9. What is the maximum number of sectors a single radio will serve? [numerical entry]

10. What is the average number of BEAD eligible locations in each proposed sector? [numerical entry]

11. What is the backhaul capacity to each radio? [numerical entry]

12. What is the average distance of a BEAD eligible location from a radio in miles? [numerical entry]

13. What is the furthest distance a BEAD location will be from a radio in miles? [numerical entry]

14. What is the estimated number of BEAD locations that will have line-of-sight, near line-of sight, and no line of sight? [200 characters]

15. Describe the type of CPEs planned for deployment to locations and their specifications (e.g. externally-installed or indoor CPEs). [200 characters]

Network Resiliency specifications

16. Describe the redundancy included in the network design. [200 characters]

17. Describe resiliency measures included in the network (e.g. power back up, strategic placement of equipment, installed network monitoring and IT capacity, etc.) [300 characters]

Section 4: Required for wireline projects with Coaxial Cable and Copper/DSL and mixed technology projects including cable or copper technology. (leave blank if it does not apply to the proposed network design)

1. What maximum percentage of the built network technology will be coaxial cable? [% numerical entry]
2. Estimate the percentage of buried coaxial cable deployed for the project. [% numerical entry]
3. What percentage of locations within the proposed network will have a last mile connections using coaxial cable? [% numerical entry]
4. For projects including copper / DSL provide a narrative description why copper is the only reasonable technology solution for the project design? [text 2000 character limit]

Section 5: Required for LEO projects applicants must present sufficient evidence to address the Appendix B of the BEAD Restructuring Policy Notice. (leave blank if it does not apply to the proposed network design)

1. With respect to the LEO Capacity Subgrant, sufficient capacity needs to be reserved to ensure compliance. How does your organization plan to ensure sufficient capacity is reserved for the period of performance and what methods will you provide to validate this capacity both internally and externally?

2. Building on the previous question, how will sufficient capacity be reserved for not only the BEAD eligible locations but all potential locations within the proposed project service area?

3.. Understanding that scalability is an overall concern coupled with the advent of new technologies, bandwidth needs are expected to grow over the period of performance and beyond. What mechanisms does your organization have in place to monitor increasing demand and scale to these new needs without a material degradation in the existing user base?